



att ccg gct tct atg gag cac tcg gga cca ggt ccg cgg cgc gcg cac tcg ctc
gct cgc cgc ccc cca gcc agc tct cgc ttc cgc gcc gcc agc cgc gcc ccc cgc
ctc ctc gct gca ccc cgc gac cta gag cca aga aag ttt gtg tgg cga gtg agg
gcc gga gag gag agc gcg ccc gcg gag tgc cgt cca gac cag cgc ggc ccc ggc
gga gag ggg agc gcc ccg agc cca ggc ggc ggc tag ccc gag tcc gcg acc
-26 -20
Met Gly Ala Ala Ala Arg Ser Leu Pro Leu Ala Phe
ccc gcc cct ccg ccc gcc atg ggc gcc gcc cgc agc ctg ccg ctc gcg ttc
-10 -1 1
Cys Leu Leu Leu Leu Gly Thr Leu Leu Pro Arg Ala Asp Ala Cys Ser Cys Ser
tgc ctc ctg ctg ggg acg ctg ctc ccc cggt gcc gac gcc tgc agc tgc tcc
10 20
Pro Val His Pro Gln Gln Ala Phe Cys Asn Ala Asp Ile Val Ile Arg Ala Lys
ccg gtg cac ccg caa cag gcg ttt tgc aat gca gac ata gtg atc agg gcc aaa
30 40
Ala Val Asn Lys Lys Glu Val Asp Ser Gly Asn Asp Ile Tyr Gly Asn Pro Ile
gca gtc aat aag aag gag gtg gac tct ggcc aac gac atc tac ggcc aac ccc atc
50
Lys Arg Ile Gln Tyr Glu Ile Lys Gln Ile Lys Met Phe Lys Gly Pro Asp Gln
aag ccg att cag tat gag atc aag cag ata aag atg ttc aag gga cct gat cag
60 70
Asp Ile Glu Phe Ile Tyr Thr Ala Pro Ala Ala VAL Cys Gly VAL Ser Leu
gac ata gag ttt atc tac aca gcc ccc gcc gct gcc gtg tgt ggg gtc tcg ctg
80 90
Asp Ile Gly Gly Lys Lys Glu Tyr Leu Ile Ala Gly Lys Ala Glu Gly Asn Gly
gac att ggaa ggaa aag aag gag tat ctc att gca ggg aag gcc gag ggg aat ggcc
100 110
Asn Met His Ile Thr Leu Cys Asp Phe Ile Val Pro Trp Asp Thr Leu Ser Ala
aat atg cat atc acc ctc tgt gac ttc atc gtg ccc tgg gac acc ctg agt gcc
120 130
Thr Gln Lys Lys Ser Leu Asn His Arg Tyr Gln Met Gly Cys Glu Cys Lys Ile
acc cag aag aag agc ctg aac cac agg tac cag atg ggcc tgt gag tgc aag atc
140
Thr Arg Cys Pro Met Ile Pro Cys Tyr Ile Ser Ser Pro Asp Glu Cys Leu Trp
act cga tgc ccc atg atc cca tgc tac atc tcc tct ccg gac gag tgc ctc tgg
150 160
Met Asp Trp Val Thr Glu Lys Asn Ile Asn Gly His Gln Ala Lys Phe Phe Ala
atg gac tgg gtc acg gag aag aac atc aac gga cac cag gcc aag ttc ttc gcc
170 180
Cys Ile Lys Arg Ser Asp Gly Ser Cys Ala Trp Tyr Arg Gly Ala Ala Pro Pro
tgc atc aag aga agc gac ggcc tcc tgc gcc tgg tac cgc ggaa gca gca ccc ccc
190 194
Lys Gln Glu Phe Leu Asp Ile Glu Asp Pro (SEQ ID NO: 7)
aag cag gag ttt ctg gac atc gag gac ccg taa gca ggc cac cag gac tcc tgg
ggc caa ttg aca gtg tcc aag agt tca gac tgg tcc agc tcc gac atc cct tcc
tgg aca cag cat gaa taa a (SEQ ID NO: 6)

FIG. 1



att ccg gcc cgc cgt ccc cca ccc cgc cgc ccc gcc cgg cga att gcg ccc cgc
gcc cct ccc ctc gcg ccc ccc aga caa aga gga gag aaa gtt tgc gcg gcc gag
cgg ggc agg tga gga ggg tga gcc gcg cgg gag ggg ccc gcc tcg gcc ccc gct
cag ccc ccc ccc gcg ccc cca gcc cgc cgc cgc gag cag cgc ccc gac ccc cca
-26 Met Gly Ala Ala Ala Arg
gcg gcg gcc ccc gcc cgc cca gcc ccc cgg ccc gcc atg ggc gcc gcg gcc cgc
-20 -10
Thr Leu Arg Leu Ala Leu Gly Leu Leu Leu Ala Thr Leu Leu Arg Pro Ala
acc ctg cgg ctg gcg ctc ggc ctc ctg ctg gcg acg ctg ctt cgc ccc gcc
-1 1 10
Asp Ala Cys Ser Cys Ser Pro Val His Pro Gln Gln Ala Phe Cys Asn Ala Asp
gac gcc tgc agc tgc tcc ccc gtg cac ccc caa cag gcg ttt tgc aat gca gat
20 30
Val Val Ile Arg Ala Lys Ala Val Ser Glu Lys Glu Val Asp Ser Gly Asn Asp
gta gtg atc agg gcc aaa gcg gtc agt gag aag gaa gtg gac tct gga aac gac
40 50
Ile Tyr Gly Asn Pro Ile Lys Arg Ile Gln Tyr Glu Ile Lys Gln Ile Lys Met
att tat ggc aac cct atc aag agg atc cag tat gag atc aag cag ata aag atg
60 70
Phe Lys Gly Pro Glu Lys Asp Ile Glu Phe Ile Tyr Thr Ala Pro Ser Ser Ala
ttc aaa ggg cct gag aag gat ata gag ttt atc tac acg gcc ccc tcc tcg gca
80
Val Cys Gly Val Ser Leu Asp Val Gly Lys Glu Tyr Leu Ile Ala Gly
gtg tgt ggg gtc tcg ctg gac gtt gga gga aag aag gaa tat ctc att gca gga
90 100
Lys Ala Glu Gly Asp Gly Lys Met His Ile Thr Leu Cys Asp Phe Ile Val Pro
aag gcc gag ggg gac ggc aag atg cac atc acc ctc tgt gac ttc atc gtg ccc
110 120
Trp Asp Thr Leu Ser Thr Thr Gln Lys Ser Leu Asn His Arg Tyr Gln Met
tgg gac acc ctg agc acc cag aag aag agc ctg aac cac agg tac cag atg
130 140
Gly Cys Glu Cys Lys Ile Thr Arg Cys Pro Met Ile Pro Cys Tyr Ile Ser Ser
ggc tgc gag tgc aag atc acg cgc tgc ccc atg atc ccg tgc tac atc tcc tcc
150 160
Pro Asp Glu Cys Leu Trp Met Asp Trp Val Thr Glu Lys Asn Ile Asn Gly His
ccg gac gag tgc ctc tgg atg gac tgg gtc aca gag aag aac atc aac ggg cac
170
Gln Ala Lys Phe Phe Ala Cys Ile Lys Arg Ser Asp Gly Ser Cys Ala Trp Tyr
cag gcc aag ttc ttc gcc tgc atc aag aga agt gac ggc tcc tgt gcg tgg tac
180 190 194
Arg Gly Ala Ala Pro Pro Lys Gln Glu Phe Leu Asp Ile Glu Asp Pro (SEQ ID NO: 9)
cgc ggc gcg ccc ccc aag cag gag ttt ctc gac atc gag gac cca taa gca
ggc ctc cca cgc ccc tgt ggc caa ctg caa aaa aag cct cca agg gtt tcg act
ggt cca gct ctg aca tcc ctt gga aac agc atg aat aaa aca ctc atc ccc
gga att c (SEQ ID NO: 8)

FIG. 2



10 20 30 40 50 60
CTAGAAAAAA CCAAGGAGGT AATAAATAAT GTGTTCTTGT TCTCCTGTAC ACCCTCAACA
 TTTTTT GGTCCTCCA TTATTTATTA CACAAGAACCA AGAGGACATG TGGGAGTTGT

70 80 90 100 110 120
AGCTTTTGAT AACGCTGATG TAGTTATCCG TGCAAAAGCT GTTTCTGAAA AAGAAGTTGA
TCGAAAAACA TTGCGACTAC ATCAATAGGC ACGTTTCGA CAAAGACTTT TTCTTCAACT

130 140 150 160
TTCTGGTAAC GACATCTACG GTAACCCGAT CAAAAG (SEQ ID NO: 35)
AAGACCATTG CTGTAGATGC CATTGGGCTA GTTTTCCTAG (SEQ ID NO: 36)

FIG. 9



FIGURE 1

att ccg gct tct atg gag cac tcg gga cca ggt ccg cg_c gc_c cac tcg ctc
gct cg_c cg_c ccc cca gcc agc tct cg_c ttc cg_c gcc gc_c agc cg_c gc_c cc_c cg_c
ctc ctc gct gca ccc cg_c gac cta gag cca aga aag ttt gtg tgg cg_a gtg agg
gcc gga gag gag agc gc_c ccc gc_c gag tgc cg_c cca gac cag cg_c gg_c ccc gg_c
gga gag ggg agc gc_c cc_c agc cca gg_c gg_c gg_c tag ccc gag tcc gc_c acc
-26 -20
Met Gly Ala Ala Ala Arg Ser Leu Pro Leu Ala Phe
ccc gc_c cct cc_c gc_c atg gg_c gc_c gc_c gc_c agc ctg cc_c ctc gc_c ttc
-10 -1 1
Cys Leu Leu Leu Leu Gly Thr Leu Leu Pro Arg Ala Asp Ala Cys Ser Cys Ser
tgc ctc ctg ctg ctg ggg acg ctg ctc ccc cg_c gc_c gac gc_c tgc agc tgc tcc
10 20
Pro Val His Pro Gln Gln Ala Phe Cys Asn Ala Asp Ile Val Ile Arg Ala Lys
cc_c gtg cac cc_c caa cag gc_c ttt tgc aat gca gac ata gtg atc agg gc_c aaa
30 40
Ala Val Asn Lys Lys Glu Val Asp Ser Gly Asn Asp Ile Tyr Gly Asn Pro Ile
gca gtc aat aag aag gag gtg gac tct gg_c aac gac atc tac gg_c aac ccc atc
50
Lys Arg Ile Gln Tyr Glu Ile Lys Gln Ile Lys Met Phe Lys Gly Pro Asp Gln
aag cg_c att cag tat gag atc aag cag ata aag atg ttc aag gga cct qat cag
60 70
Asp Ile Glu Phe Ile Tyr Thr Ala Pro Ala Ala Val Cys Gly Val Ser Leu
gac ata gag ttt atc tac aca gc_c ccc gc_c gct gc_c gtg tgt ggg gtc tcg ctg
80 90
Asp Ile Gly Gly Lys Lys Glu Tyr Leu Ile Ala Gly Lys Ala Glu Gly Asn Gly
gac att gga gga aag aag gag tat ctc att gca ggg aag gc_c gag ggg aat gg_c
100 110
Asn Met His Ile Thr Leu Cys Asp Phe Ile Val Pro Trp Asp Thr Leu Ser Ala
aat atg cat atc acc ctc tgt gac ttc atc gtg ccc tgg gac acc ctg agt gc_c
120 130
Thr Gln Lys Lys Ser Leu Asn His Arg Tyr Gln Met Gly Cys Glu Cys Lys Ile
acc cag aag aag agc ctg aac cac agg tac cag atg ggc tgt gag tgc aag atc
140
Thr Arg Cys Pro Met Ile Pro Cys Tyr Ile Ser Ser Pro Asp Glu Cys Leu Trp
act cga tgc cc_c atg atc cca tgc tac atc tcc tct cc_c gac gag tgc ctc tgg
150 160
Met Asp Trp Val Thr Glu Lys Asn Ile Asn Gly His Gln Ala Lys Phe Phe Ala
atg gac tgg gtc acg gag aag aac atc aac gga cac cag gc_c aag ttc ttc gc_c
170 180
Cys Ile Lys Arg Ser Asp Gly Ser Cys Ala Trp Tyr Arg Gly Ala Ala Pro Pro
tgc atc aag aga agc gac gg_c tcc tgc gc_c tgg tac cg_c gga gca gca ccc ccc
190 194
Lys Gln Glu Phe Leu Asp Ile Glu Asp Pro (SEQ ID No: 7)
aag cag gag ttt ctg gac atc gag gac cc_c taa gca gg_c cac cag gac tcc tgg
gg_c cca ttg aca gtg tcc aag agt tca gac tgg tcc agc tcc gac atc cct tcc
tgg aca cag cat gaa taa a (SEQ ID No: 6)

FIGURE 2

att ccg gcc cgc cgt ccc 'oca ccc cgc cgc ccc gcc cg^g cga att g^{cg} ccc cgc
 gcc cct ccc ctc g^{cg} ccc c^{cg} aga caa aga gga gag aaa gtt tgc g^{cg} g^{cc} g^{ag}
 cg^g g^{gc} agg tga gga ggg tga gcc g^{cg} c^{gg} g^{ag} ggg ccc gcc tc^g g^{cc} c^{cg} g^{ct}
 cag ccc c^{cg} ccc g^{cg} ccc cca gcc c^{gc} c^{gc} c^{gc} gag c^{ag} c^{gc} c^{cg} g^{ac} ccc cca
 -26 Met Gly Ala Ala Ala Arg
 g^{cg} g^{cg} g^{cc} ccc g^{cc} c^{cg} cca gcc ccc c^{gg} ccc gcc atg g^{gc} g^{cc} g^{cg} g^{cc} c^{gc}
 -20
 Thr Leu Arg Leu Ala Leu Gly Leu Leu Leu Leu Ala Thr Leu Leu Arg Pro Ala
 acc ctg c^{gg} ctg g^{cg} ctc c^{tc} c^{tg} c^{tg} g^{cg} acg c^{tg} c^{tt} c^{gc} c^{cg} g^{cc}
 -1 1 10
 Asp Ala Cys Ser Cys Ser Pro Val His Pro Gln Gln Ala Phe Cys Asn Ala Asp
 gac g^{cc} tgc agc, tgc tcc c^{cg} g^{tg} cac c^{cg} caa c^{ag} g^{cg} ttt tgc aat g^{ca} gat
 20 30
 Val Val Ile Arg Ala Lys Ala Val Ser Glu Lys Glu Val Asp Ser Gly Asn Asp
 gta g^{tg} atc agg g^{cc} aaa g^{cg} g^{tc} agt gag aag gaa g^{tg} g^{ac} t^ct g^{ga} a^{ac} g^{ac}
 40 50
 Ile Tyr Gly Asn Pro Ile Lys Arg Ile Gln Tyr Glu Ile Lys Gln Ile Lys Met
 att tat g^{gc} a^{ac} c^{ct} atc a^{ag} agg atc c^{ag} t^{at} gag atc a^{ag} c^{ag} ata a^{ag} atg
 60 70
 Phe Lys Gly Pro Glu Lys Asp Ile Glu Phe Ile Tyr Thr Ala Pro Ser Ser Ala
 ttc aaa g^{gg} c^{ct} gag a^{ag} g^{at} ata gag ttt atc tac acg g^{cc} c^{cc} t^{cc} t^{cg} g^{ca}
 80
 Val Cys Gly Val Ser Leu Asp Val Gly Gly Lys Glu Tyr Leu Ile Ala Gly
 g^{tg} t^{gt} g^{gg} g^{tc} t^{cg} g^{ac} g^{tt} g^{ga} g^{ga} a^{ag} g^{aag} t^{at} c^{tc} att g^{ca} g^{ga}
 90 100
 Lys Ala Glu Gly Asp Gly Lys Met His Ile Thr Leu Cys Asp Phe Ile Val Pro
 a^{ag} g^{cc} g^{ag} g^{gg} g^{ac} g^{gc} a^{ag} atg c^{ac} atc a^{cc} c^{tc} t^{gt}, g^{ac} t^{tc} atc g^{tg} c^{cc}
 110 120
 Trp Asp Thr Leu Ser Thr Thr Gln Lys Lys Ser Leu Asn His Arg Tyr Gln Met
 t^{gg} g^{ac} c^{tc} a^{gc} a^{cc} a^{cc} c^{ag} a^{ag} a^{ag} a^{gc} c^{tg} a^{ac} c^{ac} a^{gg} t^{ac} c^{ag} atg
 130 140
 Gly Cys Glu Cys Lys Ile Thr Arg Cys Pro Met Ile Pro Cys Tyr Ile Ser Ser
 g^{gc} t^{gc} g^{ag} t^{gc} a^{ag} atc a^{cg} c^{gc} t^{gc} c^{cc} a^{tg} atc c^{cg} t^{gc} t^{ac} atc t^{cc} t^{cc}
 150 160
 Pro Asp Glu Cys Leu Trp Met Asp Trp Val Thr Glu Lys Asn Ile Asn Gly His
 c^{cg} g^{ac} g^{ag} t^{gc} c^{tc} t^{gg} a^{tg} g^{ac} t^{gg} g^{tc} a^{ca} g^{ag} a^{ag} a^{ac} a^{tc} a^{ac} g^{gg} c^{ac}
 170
 Gln Ala Lys Phe Phe Ala Cys Ile Lys Arg Ser Asp Gly Ser Cys Ala Trp Tyr
 c^{ag} g^{cc} a^{ag} t^{tc} t^{tc} g^{cc} t^{gc} a^{tc} a^{ag} a^{ga} a^{gt} g^{ac} g^{gc} t^{cc} t^{gt} g^{cg} t^{gg} t^{ac}
 180 190 194 (SEQ ID NO: 9)
 Arg Gly Ala Ala Pro Pro Lys Gln Glu Phe Leu Asp Ile Glu Asp Pro
 c^{gc} g^{gc} g^{cg} g^{cg} c^{cc} c^{cc} a^{ag} c^{ag} g^{ag} t^{tt} c^{tc} g^{ac} a^{tc} g^{ag} g^{ac} c^{ca} t^{aa} g^{ca}
 g^{gc} c^{tc} c^{aa} c^{gc} c^{cc} t^{gt} g^{gc} c^{aa} c^{tg} c^{aa} a^{aa} a^{ag} c^{ct} c^{ca} a^{gg} g^{tt} t^{cg} a^{ct}
 g^{gt} c^{ca} g^{ct} c^{tg} a^{ca} t^{cc} c^{tt} c^{ct} g^{ga} a^{ac} a^{gc} a^{tg} a^{at} a^{aa} a^{ca} c^{tc} a^{tc} c^{cc}
 g^{ga} a^{tt} c (SEQ ID NO: 8)



FIGURE 9



RECEIVED

FEB 26 2003

TECH CENTER 1600/2900

10	20	30	40	50	60
CTAGAAAAAA	CCAAGGAGGT	AATAAATAAT	GTGTTCTTGT	TCTCCTGTAC	ACCCTCAACA
TTTTTT	GGTCCTCCA	TTATTTATTA	CACAAGAAC	AGAGGACATG	TGGGAGTTGT
(SEQ ID NO. 35)					
70	80	90	100	110	120
AGCTTTTTGT	AACGCTGATG	TAGTTATCCG	TGCAAAAGCT	GTTTCTGAAA	AAGAAGTTGA
TCGAAAAAAC	TTGCGACTAC	ATCAATAGGC	ACGTTTCGA	CAAAGACTTT	TTCTTCAACT
(SEQ ID NO. 36)					
130	140	150	160		
TTCTGGTAAC	GACATCTACG	GTAACCCGAT	CAAAAG.	(SEQ ID NO. 35)	
AAGACCATTG	CTGTAGATGC	CATTGGGCTA	GTTCCTTAG	(SEQ ID NO. 36)	